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## ABORIGINAL SHELL ORNAMENTS, AND MR. F. A. BARBER'S PAPER THEREON.

BY R. E. C. STEARNS.

IN the May number of the AMERICAN NATURALIST (page 271) Mr. E. A. Barber, in an article on Stone Implements and Ornaments from the Ruins of Colorado, Utah, and Arizona, remarks: "The marine shells which were converted into beads by the ancient tribes, so far as ascertained by the investigations of the United States Geological Survey, during the summer of 1875, were the *Oliva* and (possibly) the *Busycon* or *Murex*. . . . Figure 7, Plate I., represents a specimen of the *Oliva biplicata* (probably), although the shell is so weather worn that the specific characteristics are almost entirely obliterated. Still it strongly resembles this species of the Pacific coast, and is very likely the same." In a foot-note Mr. Barber says that "it may be *Olivella gracilis*."

The figure referred to certainly *does not* strongly resemble *O. biplicata*, and if reasonably accurate, the specimen from which the figure was drawn does not belong to the said species. It may be either *O. gracilis* or *O. dama*,<sup>1</sup> common Gulf of California forms, not found as yet north of latitude 25° N. on the ocean side of Lower California, or it may be *O. baetica*, which like *O. biplicata* is a northern species, not found in the Gulf.

There is no species of *Busycon* on the Pacific Coast, and *Murex*,<sup>2</sup> though found in the Gulf, seldom occurs on the outer shore north of Cape St. Lucas, and is rare at the cape. "*Murex*" as used here is exceedingly vague, for the *Muricidae* are so largely represented upon this part of the West American or more exactly West Mexican coast, and includes so many well-marked groups, that the name of the genus, subgenus, or group should be given.

The importance of an accurate determination of species of shells, in connection with the "ancient tribes" of the region named in Mr. Barber's paper, and as related under similar conditions to ethnological questions, upon a brief review of the points involved, will be seen at a glance.

If the beads or ornaments were made of the shells of *Murex* and *Olivella*, either *O. gracilis* or *O. dama*, Gulf forms, it in-

<sup>1</sup> Cooper in Geog. Cat., sp. 732, credits San Pedro, Cal., with this form, but it has not been verified.

<sup>2</sup> Whether *Murex* proper or the markedly prominent group, *Phyllonotus*, is not stated by Mr. Barber.

dicates a line of communication, intercourse, traffic, and possibly migration by the way of the Gulf of California and the Colorado River. If the Olivella is *O. biplicata*, and the beads, which it is said are as thin as a wafer and of the circumference of an ordinary pea, are what I suspect,<sup>1</sup> then we have a right to infer that these interior people were in communication directly or indirectly with the California tribes north of what is now known as Lower California. If any of the shell ornaments are made of some species of *Busycon*, then communication with the Gulf of Mexico is implied.

If all of the shells cited by Mr. Barber, and involved in doubt by the indefiniteness of his paper, are actually represented in the material collected, then the whole question as to the origin, distribution, and characteristics of the extinct tribes of Colorado, Utah, and Arizona is still further complicated, for it indicates intercourse, traffic, and perhaps migration in three directions, and the relations of these interior people with the maritime or coast tribes of both sides of the continent, or through, or with intermediate, tribes, become a factor which has to be duly weighed and considered, the importance of which is only equaled by its complexity.

It is highly probable that an examination of the shell ornaments mentioned by Mr. Barber by some competent conchologist familiar with West American shells and with the ethnological material of the California mounds would authenticate the species of which Mr. Barber's shell ornaments are made, and it is to be hoped that he will have them carefully examined, and state not only the species but the authority for their determination. By doing so he will add much to the value of his researches, and the object of this criticism will be accomplished.

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### THE LONG-JAWED GOBY.

BY W. N. LOCKINGTON.

THE somewhat inelegant title I have given to this curious little fish cannot be said to be its vernacular name, since, like the greater portion of the creatures that inhabit the world, it has not as yet acquired a commonly received name in our language, and the only name it has a perfect right to is the Latin one bestowed by its first describer, Dr. J. G. Cooper, namely, *Gillichthys mirabilis*.

<sup>1</sup> Similar beads are found in the California mounds, and are simple concavo-convex disks cut out of the body whorl of *O. biplicata*.